INTER-TIDAL LOG STORAGE

Prepared for:

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BC Ministry of Sustainable Resource Management

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BUILDING BLOCKS FOR ECONOMIC DEVELOPMENT & ANALYSIS

PREFACE

PURPOSE

Building Blocks have been conceived and developed by the Economic Development Branch of the Ministry of Sustainable Resource Management, under the guidance of Nancy South, Manager Economic Analysis, as an analytical tool that supports British Columbia coastal and land and resource use planning and decision-making and economic development initiatives. The Blocks contain concise business and sector information for a broad range of resource-based business types in BC. At this point, there are more than 30 Blocks either complete or in draft form. Several more Blocks have been identified as high priority by planning tables and other client groups. Additional Building Blocks will be developed over time, and some Blocks may be updated. For the most current Building Blocks, please see the Ministry of Sustainable Resource Management website, at: http://srmwww.gov.bc.ca/rmd/ecdev/

ACKNOWLEDGEMENTS

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BENEFITS

Building Blocks are expected to provide the following general benefits:

- Increase efficiency and more informed decision-making by providing readily accessible, credible information to planning and economic development processes;
- Improve the consistency of economic information across planning areas;
- Support economic analysis and decision-making that occurs outside formal coastal and land use planning processes; and
- Provide linkages between economic analysis and other social and environmental analytical tools (through identifying resource requirements to support economic activities and general compatibilities with other sectors and values).

LIMITATIONS

Every effort has been made to ensure that the information contained in Building Blocks is accurate and consistent. Approved, credible data sources are the foundation for Building Blocks. All Blocks were reviewed by sponsoring agencies and other experts. However, users are cautioned that information is used at their own risk, and that the authors and sponsors are not liable for any damages. Any conclusions or interpretations by the authors are not intended to represent government policy. Also, note that Building Blocks do not provide site specific information nor do they consider requirements for sustainability (social, community, environmental).

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RECOMMENDED REFERENCE/CITATION

BC Ministry of Sustainable Resource Management, 2003, Building Blocks for Economic Development and Analysis, *[Title of Sector]*. http://srmwww.gov.bc.ca/rmd/ecdev/

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1. Crown Land, Land Use Management Manual, Volume 3, Chapter 3.3
2. Excerpts of Applicable Regulations

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1.0 PURPOSE AND SCOPE OF THIS STUDY

The Ministry of Sustainable Resource Management, Economic Development Branch, has identified an analytical tool, described as a "building block" which is intended to support land use decision-making by way of providing an accurate description of the economic outcomes of various building blocks (commercial activities).

This study estimates the investment of resources and economic outcomes associated with a forest-sector building block, **inter-tidal log storage.**

Limited economic data describing this specific building block was available through the Ministry of Forests, or other provincial government agencies. The Ministry of Provincial Revenue collects and regularly updates cost data from forest industry operators for the purpose of deriving appraisal estimates for incorporation in the Comparative Value Pricing System – this is the primary mechanism by which the provincial determines stumpage rates. Data within the Ministry of Provincial Revenue is not sufficiently refined as to capture the economic outcomes associated with inter-tidal log storage. For this reason the Ministry of Provincial Revenue was unable to provided cost data relevant to the building block of interest. An economic description of log sorting relied, for the most part, on the participating industry operators.

Industry operators provided data to Sterling Wood Group on a confidential basis and for the purposes of this study only. Sensitivities regarding the use of data by a government agency related primarily to the Comparative Value Pricing System – a separate, long running, formal process between government and industry operators facilitates the exchange of operating cost information.

2.0 AN ECONOMIC PROFILE – INTER-TIDAL LOG STORAGE

The Ministry of Sustainable Resource Management (MSRM) has designed a "Building Block Template" which identifies ten design elements. This section describes the design elements for the building block of interest in accordance with the template identified by the MSMR.

2.1 Overview – Geographic Descr'ption

Inter-tidal log storage is undertaken exclusively on the coast of British Columbia; the coastal region of British Columbia is divided into three sub-regions:

- South Coast, including Vancouver Island
- Mid-Coast
- North Coast

Inter-tidal log storage occurs throughout each of these sub-regions of the coast.

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2.2 Inter-Tidal Log Storage

Inter-tidal log storage areas provide no incremental value other than to facilitate the temporary storage of bundle-booms, or bagged logs. On a seasonal basis, some storage areas provide for protection from rough waters and therefore minimize log escape and breakage during water transport. This value is difficult to estimate since log losses and breakage are not easily tracked and recorded. Water storage of logs is comparatively inexpensive, dewater and storing logs on upland areas adds an additional expense, in the range of \$3 - 5/m^3, as a less expense substitute to land storage this reduced cost may be the incremental value attributable to inter-tidal log storage.

3.0 INTER-TIDAL LOG STORAGE — REGION: COAST

3.1 Geographic Range

- Limited to the four sub-regions of the coast: South Coast (Including Vancouver Island), Mid Coast, North Coast and Queen Charlotte Islands.

3.2 Resource Requirements

- Private or Crown foreshore.
- Foreshore requirement ranges considerably depending on volumes to be stored – average area ~ 2 hectares.

3.3 Products

- Log inventory management – for storage purposes only.
- Fees associated with log storage may be in the range of \$0.25/m^3 to \$0.50/m^3 per year depending on location and use.

3.4 Investment

- Equipment / Site Improvements, average investment:
  - Standing gear – \$45,000
  - Anchors / chains – \$30,000
  - Boomsticks – \$150,000
- Total Average Investment Est. \$225,000
- **Maintenance** – Approximately \$0.15/m^3 – \$0.25m^3/year.

3.5 Infrastructure

- Log towing / barging services.
- Transportation of fuel (boom boats) and supplies.
- Estimate the tertiary benefits could be in the range of \$2/m^3 / year.

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3.6 Market Outlets

- Coastal and recently interior (for species such as cedar) log buyers and log processors (sawmills, pulp mills etc.).
- Log buyers for export markets.

3.7 Capacity

- Log storage in inter-tidal areas has and continues to be common practice for the coast forest industry.
- Water-based log storage continues at all remote coastal logging operations and such operations are numerous. Estimated log storage, at varying scale takes place at over 200 locations on the coast, for varying lengths of time. Average area required is 2 hectares.

3.8 Labour Markets Employment

- Use and maintenance of inter-tidal log storage grounds supports, on average 0.5 – 1.5 FTE depending on the scale of the storage area and period of use. Year-round storage usually generates 1.0 fulltime job.

3.9 Government Revenues

- Annual rental fees – minimum $500/year – fees vary depending on location of booming / log storage grounds. The Crown Land, Land Management Manual (Volume 3, Chapter 3.3) describes the forms of land use tenures and pricing applicable to the use of Crown land / foreshore areas for log storage – appendix I of this section of the manual lists a fee schedule for log handling, log sorting, and storage, which varies based on the applicable geographic log handling zone.
- Leases in municipal areas are structured on comparative market rates.
- Property taxes (municipal) – wide range in taxes, depending on location and area occupied.
- Contribution to stumpage revenues is estimated at $0.25 / m^3.

3.10 Regulatory Regime(s)

- *Navigable Waters Protection Act*.
- *Fisheries Act* – primarily sections 35 to 43, Fish Habitat Protection and Pollution Prevention.

3.11 Coefficient Area of Crown Land

- Water log storage reduces log handling costs by approximately $3/$m^3$ – economic coefficient for use of water area and foreshore estimate at $60,000 / hectare / year *.

  * based on ongoing storage of 40,000 m^3.

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4.0 GOVERNMENT REVENUES

4.1 Rental Fees

Land & Water British Columbia Incorporated (previously British Columbia Assets and Land Corporation) advises the use of Crown lands, both foreshore and upland parcels, is facilitated through one or a combination of agreements, either a temporary permit, licence of occupation or lease, applicable to Crown land uses including helilog drop zones, dry land and water log sorts and log storage on both foreshore and upland parcels of Crown land:

	General Description	Fees
1. Permits	➤ Issued for use of Crown land for less than one year.	$250 per permit.
2. Licence of Occupation		
Best suited to short to medium term use (renewed annually) for the purpose of log storage.	➤ Range in size from 0.2 hectares up to 20 hectares. One licence may include several related sites – this is typically the case for helilog drop zones. Normal term is 10 years.	Minimum fee is $500/year – annual fees are calculated at a rate of 7.5% of the licence value.
3. Lease		
Best suited to the longer-term use of Crown land for the purpose of log storage.	➤ Normal term is 30 years. ➤ Site must be surveyed and designated for exclusive use by lessee. Term of lease may be as long as ten years.	Rental for a lease is calculated at 8% of the lease value. Minimum annual rental is $500.

An excerpt from the Crown Land, Land Management Manual, Volume 3, Chapter 3.3 is attached, this section of the manual describes the forms of land use tenures and pricing applicable to the use of Crown land for log storage. Appendix I of this section of the Land Management Manual describes a fee schedule for log handling including log storage. An average rental rate outside of the Howe Sound, Southern Vancouver Island area would be in the range of $2,500 - $3,000 / hectare.

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5.0 INPUT / OUTPUT ESTIMATES FOR INTER-TIDAL LOG STORAGE

The Ministry of Forests' has prepared and maintains two manuals, the *Coast Appraisal Manual* and the *Interior Appraisal Manual*, both of which are approved by the Minister of Forests, which together contain the policies and procedures for determining stumpage rates charged for Crown timber harvested in British Columbia.

Both the Coast Appraisal Manual and the Interior Appraisal Manual identify phase cost estimates which under the Comparative Value Pricing System are estimate harvesting and transportation costs which are applied to each cutting authority area for the purposes of calculating the applicable stumpage rate. The phase cost estimates, predictive formulas and several of the data / cost tables in each manual are derived from data collected through surveys of logging and forest management costs incurred by licensees and contractors.

5.1 Inter-Tidal Log Storage

A cost estimate describing for the use of tie-up grounds or inter-tidal log storage area is not specifically identified in the *Coast Appraisal Manual*, this cost is buried in the Towing or Barging estimate which as little as zero for locations such as Alberni and Chemainus to $10.62/m^3$ for Stewart (North Coast).

The input/output coefficient estimate, in the section to follow, adopts an alternative cost approach[1] of $\$3/m^3$ to estimating the value of inter-tidal log storage.

5.2 Input / Output Coefficients

An important descriptive characteristic of each building block is the economic outputs generated by each unit of Crown resource utilized as an input to the building block. The area of Crown land or foreshore and water area consumed to support the activity is the (standardized) input unit.

Contributing industry operators were able to estimate the physical area requirement associated with water-based log storage. However, the most efficient measurement for capturing the economic outcomes associated with log storage is $\$/m^3$. The table below translates the operational measurement, expressed as $\$/m^3$, into an area-based expression.

[1] Value attributable to readily accessible (local) inter-tidal log storage sites is the alternative cost associated with dewatering and transporting logs to an alternative water, or land site for storage. Range in incremental log handling cost may be from $\$3/m^3$ to $\$5/m^3$, or greater, depending on the distance logs must be transported to alternative storage locations.

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Land-Area Coefficient Estimates

Building Block or Economic Activity	Contribution of the BB to end value of products $/m^3$	Coefficient Per hectare of Crown land
Inter-tidal Log Storage	Water log storage reduces log handling costs by approximately $3/ m^3	**$60,000 / hectare / year** (based on ongoing storage of 40,000 m^3)

5.3 Regulatory Requirements

Water-based log storage, in inter-tidal areas, under the three forms of provincial land use tenures available for log handling (temporary permit, licence of occupation and lease), is primarily regulated by two federal statutes:

1. ***Navigable Waters Protection Act***

The main purpose behind the *Navigable Waters Protection Act* is to ensure public access to and efficient use of public waterways in Canada. Water borne log handling, including heli-log drop, log sorting, log storage and transportation (bagging, booming and barging) must be conducted in a fashion which does not result in the creation of navigable water hazards.

2. ***Fisheries Act***

Primarily sections 35 to 43 of the *Fisheries Act*, Fish Habitat Protection and Pollution Prevention, are those sections of the *Act* which impact on log handlers. Water borne log handling must be conducted in a manner so as not to degrade either water quality of fish habitat. This section of the *Fisheries Act* would be applicable to all water borne log-handling activities including heli-log drop.

Companies and Agencies Who Contributed Data to this Study:

- Ridley Island Log Sort, Prince Rupert.
- Ministry of Forests, Victoria.
- Land & Water British Columbia Incorporated, Nanaimo.

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ATTACHMENT 1

Crown Land, Land Use Management Manual
Volume 3, Chapter 3.3

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ATTACHMENT 2

Excerpts of Applicable Regulations

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ATTACHMENT 3

Example of a Log Sorting Offence under the *Fisheries Act*

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